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AUTHOR Von Holzen, Roger
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ABSTRACT

This study, conducted at a mid-western regional state university, examined the capacity of e-mail to provide a more flexible medium for transmitting student journals to the teacher. The investigation took place over a 16-week semester in a required freshman level computer literacy course. Students were divided into three groups: (1) the control group, in which student/teacher communication was limited to the traditional class time and office hours; (2) treatment group one, in which students were required to submit to the teacher via e-mail weekly journals; and (3) treatment group two, in which students used a spiral notebook to write and submit weekly journal entries. A pretest/posttest design was used to determine the changes in students' computer-related attitudes and knowledge. Results indicated that though the subjects that used e-mail submitted fewer journal entries (often due to technical errors), their entries were much longer. The posttest journal-related questions demonstrated that the student journals helped to enhance communications between the students and the teacher and that once exposed to using e-mail, students preferred to continue to use this medium rather than written journals. (Contains 29 references.) (AEF)

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Electronic Student Journals: A Means to Enhance Classroom Communications

by Dr. Roger Von Holzen

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Electronic Student Journals: A Means to Enhance Classroom Communications

Dr. Roger Von Holzen
Garrett-Strong 104C
Northwest Missouri State University
Maryville, MO 64468
0100010@northwest.missouri.edu

Key words: journals, e-mail, communication, students, teachers, university, college

Abstract

To increase the exchange rate of journal entries between a teacher and his/her students, it was proposed that electronic mail be utilized as the medium by which the journal entries were transmitted. The results from the study found that the students who used electronic mail as the means of transmitting their journal entries wrote significantly longer entries than the students who wrote in traditional written journals. No differences were found, though, between treatment groups as to computer-related knowledge and attitudes.

Background

At the heart of the educational process is the role of communication between the teacher and student. Shale and Garrison (1990) view the teacher and student as "partners in [a]... communication relationship" (p. 32). Schramm (1983) analyzes this relationship further by describing the communication relationship as a "transaction in which both parties are active" (p. 14) and which involves the two-way exchange of information.

This two-way dialogue process is typically reduced in most classrooms to a simple question and answer pattern of communication between the teacher and the students (Shimanoff, 1988). McGrath (1990) attributes this to the "normative force" that governs most classroom interaction–the expectation that face-to-face interactions are regulated and follow anticipated patterns.

Strackbein and Tillman (1987) and Nahrgang and Petersen (1986) see writing as a means of fostering communication between teachers and students. Other proponents of writing, such as Britton (1972), view writing as a means of enabling people to better understand and learn from events. Leahy (1985) and Odell (1986), focusing more narrowly, advocate the use of

writing to help promote greater understanding of a subject.

The medium that is strongly advocated for both written communications and learning purposes is the journal (Fulwiler, 1987). Written journals can provide the teacher with feedback on the success or failure of course material (Crowley, 1984; Gambrell, 1985; Hart, 1972; Leahy, 1985; Mikkelsen, 1985; Perraton, 1988; Stout, Wygal, & Hoff, 1990). More specifically, journals enable the teacher to check on student understanding of the course material and also related misconceptions (Durfee, 1989; Hart, 1972; Nahrgang & Petersen, 1986; Tarnove, 1988).

Elton (1988), Emig (1977), Stout et al. (1990), and Yinger (1985) advocate the use of written journals as a means of actively involving students in the learning process, thereby aiding in the transfer of the course material (Kruger & May, 1986; Yinger, 1985). Finally, the time and space flexibility associated with the writing and evaluation of journals is a major reason given by Elton (1988) and Mikkelsen (1985) for the use of written journals.

The time and space benefit of journal writing, though, is actually quite limited in its flexibility as a medium of communication. The major problem lies with the frequency of the exchange of the written journals between the teacher and the students. Strackbein and Tillman (1987) suggest that the journals be collected and read by the teacher on a daily basis. But in a college or university setting, most classes are not scheduled to meet daily. For classes that meet once a week, the exchange process could span over at least a two week period. Written journals would thus play only a limited role in the between-class communication between teachers and students, since the exchange process is usually confined to the time of the class and to the assigned classroom (space restraint).

What is needed is a medium through which the exchange of communications can take place without regard to time and space considerations. Electronic mail (e-mail) can fulfill this need. It is proposed that students who frequently communicate with their teacher using e-mail as the medium of exchange of written journals will achieve higher grades in the course and more positive attitudes toward the course-related material than students who either communicate with their teacher only during traditional times (class time or teacher office hours) or students who communicate only intermittently with their teacher using e-mail.

The primary benefit of using e-mail as the medium of communication is its flexibility with respect to the time and place of its utilization (Davies, 1988; Elton, 1988; Wilson, 1987). Bull, Harris, Lloyd, and Short (1989) found that students use e-mail for informal conversations and for between-class interaction with professors. Eisley (1992) expands on this use of e-mail by using this medium as a means for students to submit assignments to the teacher and also as a means for the teacher to give students personal feedback on their test results and assignments.

In a study conducted by D'Souza (1991), the benefits of using e-mail (vs. traditional classroom handouts and announcements) as a means by which to communicate and disseminate class information and assignments to students was explored. The results D'Souza obtained indicated that the students who were in the treatment group where e-mail was used as the medium of communication scored significantly higher on exams and assignment grades than the students in the control group where the means of communications relied on traditional handouts and announcements.

Research Design and Methodology

This study was conducted at a small, mid-western regional state university. Every student enrolled in the university is provided an account on the VAX computer network that links the entire campus. With three VAX terminal labs located across campus, plus a terminal located in every dormitory room, the subjects thus had ready access to the network. Every instructor on campus is also provided a VAX terminal in his or her office.

The investigation took place over the 16 week length of the semester in a required freshman level computer literacy course. Three sections of the course, all under the guidance of the same instructor, were selected to participate in the study. Assignment to the course sections was based on student self-enrollment and section availability. Approximately 28 students were enrolled in each section.

The three sections of the computer literacy course involved in this study were randomly divided into one control group and two treatment groups.

Control group

Student/teacher communication was generally limited to the traditional course format–class time and office hours communications. The students were given the option to communicate with the teacher using e-mail.

Treatment group one

To supplement the traditional student/teacher communication process, the students were required to submit to the teacher, via e-mail, written journals. The format used for the journals incorporated the attributes of both a course log, which focused on the course material/assignments (Durfee, 1989; Nahrgang & Petersen, 1986; Stanley, 1991; Stout et al., 1990), and the dialogue journal, which was a running conversation between the student and teacher dealing with course content and other areas of interest and concern (Gambrell, 1985).

Each Friday, the students submitted their journals in the form of an edited computer file sent to the teacher through the electronic mail system on the VAX network. Each entry was appended to the end of the file in order to provide both the student and the teacher with a running account of their written exchanges. The journal entries were based on specific instructor-generated questions that discussed the previous week's course material and assignments plus related student interests and concerns. The teacher responded to the students' journals by Monday's class.

The teacher included in each student's journal a written response to any questions that were presented and comments related to what the student had written.

Treatment group two

The communication format that was used with this treatment group utilized a spiral notebook provided by the instructor. The students were also required to submit their journal entries every Friday. The same teacher response scheme that was used with treatment group one was also utilized with treatment group two.

Instruments

A pretest/posttest design was used to determine the changes in students' computer-related attitudes and knowledge. The initial section of the pretest requested information on the student's gender, age, college classification, and the last four digits of his or her Social Security number. Additional questions related to the student's ACT composite score, prior computer learning/experience, and ownership of a computer were also included in this section.

The next section of the pretest surveyed the student's attitude toward computers. The Computer Attitude Scale, authored by B.H. Loyd and D.E. Loyd (1985), is a five point Likert-type instrument consisting of 30 items. Positively and negatively worded statements of attitudes toward computers and the use of computers are presented. The overall coefficient alpha reliability of the Computer Attitude Scale is .95.

The last section of the pretest was a survey of course-related knowledge constructed with the assistance of university instructors familiar with the field of computer literacy. Forty computer knowledge-related multiple choice questions were presented. The scoring for the knowledge survey was performed on a correct/incorrect basis with the total points converted to a percentage. The reliability coefficient for the knowledge test was .71.

For the posttest, the first section asked for the last four digits of the student's Social Security number. The six demographic-related questions on the pretest were replaced by three questions that surveyed the subjects' experience with and attitude toward journal writing.

The remaining sections of the posttest were comprised of the Computer Attitude Scale and the knowledge survey. Both of these instruments were identical to the versions presented on the pretest.

Data Analysis

The subjects in treatment group one submitted, on average, fewer journal entries than the subjects in treatment group two in both the topic and discussion categories (Table 1). The difference in the average word count for the discussion category, though, was statistically significant (F Value: 4.55, Pr>F: 0.0377). The subjects in treatment group one wrote, again on average, more words per journal entry than did the subjects in treatment group two (Table 2).

Submission Category	Treatment Group One	Treatment Group Two
Topic	9.12	9.93
Discussion	12.50	13.21

Table 1: Average Number of Submissions

Submission Category	Treatment Group One	Treatment Group Two
Topic	73.68	66.83
Discussion	50.82	39.56

Table 2: Average Number of Words Per Submission

The differences in the percent changes in attitude and knowledge scores between the three groups were considerable (Tables 3 and 4). The results, though, were not statistically significant.

Group Type	Pretest[1]	Posttest	Percent Change
Control Group	112.96	113.00	0.04
Treatment Group One	105.84	111.92	5.74
Treatment Group Two	112.50	111.61	-0.79

[1]Maximum of 150 points

Table 3: Average Computer-Related Attitude

Group Type	Pretest[1]	Posttest	Percent Change
Control Group	49.22	59.07	20.01
Treatment Group One	44.72	56.64	26.66
Treatment Group Two	48.04	59.07	22.96

[1]Percent correct

Table 4: Average Computer-Related Knowledge

The findings from the three posttest questions that surveyed the subjects' experience with and attitude toward journal writing indicated that the subjects in both treatment groups were ambivalent as to whether the writing in the journals helped them academically in the class (Table 5). In response to the question, "I feel that the journal increased communications between myself and the instructor," subjects in both treatment groups generally felt that the journals did aid in increasing communications (Table 6).

Treatment Group	Average Response[1]
One (Electronic Journal)	2.44
Two (Written Journal)	2.55

[1]Five point scale (Strongly Agree to Strongly Disagree)

Table 5: Posttest Question #1

Treatment Group	Average Response[1]
One (Electronic Journal)	1.64
Two (Written Journal)	1.75

[1]Five point scale (Strongly Agree to Strongly Disagree)

Table 6: Posttest Question #2

In response to the third posttest question that asked the subjects if they would prefer to write future journal entries either in a notebook, using electronic mail, or not write any journal entries, the differences in responses between the two treatment groups was statistically significant (F Value: 8.31, Pr>F: 0.0058). The breakdown of the data obtained is shown in table 7.

Group Type	Notebook[1]	Electronic Mail	No Journals
Treatment Group One	4.0	80.0	16.0
Treatment Group Two	57.1	25.0	17.9

Table 7: Posttest Question #3

Discussion

The overall results indicate that though the subjects that submitted journal entries via e-mail submitted fewer journal entries (often due to technical errors), their entries were much longer, especially on the discussion questions. Such results may have contributed (though not statistically significant) to the greater percentage changes in attitude and knowledge scores for the subjects in treatment group one versus the subjects in treatment group two and the control group.

The posttest journal-related questions demonstrated that the student journals helped to enhance communications between the students and the teacher. The questions also indicated that once exposed to using e-mail as a means of communications, students prefer to continue to use this medium in the future rather than communicating through written journals.

Results thus obtained from this study should provide teachers, who have access to electronic mail, with more insight into the effectiveness and practicality of utilizing e-mail as the medium of exchange of written journals with their students.

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[1] In 1991 the non continuing students at higher education institutions averaged 14.6%, however this proportion of non continuing students is only a crude measure of drop out rates. (DEET 1992)

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